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OPINION, FINDINGS AND DECISION
ON 1976 AUTOMOBILE BODILY INJURY
COVERAGE RATES, RENDERED
NOVEMBER, 1975

Nov 1 Rec'd

On September 2 a hearing was commenced to consider premium rates for automobile insurance under the provisions of Chapter 175, Sections 113A, 113B and 113C, and Chapter 90, Sections 34A and 340, of the Massachusetts General Laws and the provisions of Chapter 1113 of the Acts of 1973. The hearing was divided into two phases, dealing first with the bodily injury coverages and putting off for separate consideration all matters related to property damage coverages. The proceedings on bodily injury coverages were completed on September 12. This decision is confined accordingly to bodily injury coverage rates.

Represented at the hearings were six parties in addition to the Division of Insurance. The Massachusetts Automobile Rating and Accident Prevention Bureau (the Bureau) appeared on behalf of all insurers writing automobile coverages in the Commonwealth. The Attorney General's Office, the Massachusetts Consumers' Council, Fair Share, and the Public Interest Research Group intervened on behalf of insurance consumers. The Associated Taxi Owners of Massachusetts appeared as an intervenor on matters related to taxicab rates.

Many diverse subjects were considered at the hearing. Rates for 1976 had to be set for a variety of coverages for each of several vehicle types. Rates for 1974 and 1975 were subject to a statutory review for possible adjustment. Finally, there was the question of classification relativities to distribute premium costs by age, location and other differential characteristics. The Bureau, in an advisory filing, recommended procedures and solutions for all of the hearing issues. That filing was made in general adherence to the traditional methodology of automobile ratemaking. I hereby accept that filing as the basis for rate calculations except where modifications are ordered in the following text. Those modifications are highly substantive in both theory and impact.

Private Passenger - Coverage A

Coverage A is a compulsory coverage for bodily injury lossess containing both a no-fault and a tort based component. In the process of setting Coverage A rates for private passenger cars, almost all of the important issues of methodology raised at this hearing were explored. Before turning to the resolutions of those issues, it is useful to summarize briefly the actuarial techniques

involved in Massachusetts automobile ratemaking. The goal of the ratemaking process at this hearing was to fix 1976 premium charges which would allow the average automobile insurer to pay all of the legitimate claims it received, to meet all appropriate expenses, and to have enough left over to constitute a reasonable rate of return on its capital at risk - all with respect to policies written in 1976. Obviously, we do not know in the fall of 1975 what the losses or expenses on 1976 policies will be. The actuaries' tools are designed to use data now available to project that future experience. Claims plus allocated claim adjustment expenses for the 1974 policies (together called 1974 "losses" in insurance terminology) provide a convenient starting point. These records are almost complete by now. The total of 1974 losses divided by the number of car-years exposed is identified in actuarial documents as "1974 raw pure premium": the average 1974 loss cost per vehicle without provision for expenses or profit. Because the data for 1974 is not absolutely final at this time, an adjustment to the 1974 pure premium is made to compensate for what later experience may do to modify those 1974 results. This adjustment is called

a development factor, and the adjusted figure is known as "1974 developed pure premium". This should be the best estimate available now of the 1974 final loss results on a per vehicle basis. The 1974 developed pure premium reflects experience for policies centered around July 1 of 1974. The period for which rates are being made is centered around July 1 of 1976. To account for this time difference, trend and projection factors are introduced. The former adjusts for changes in price levels from July of 1974 to December of 1974. The latter adjusts for expected price level changes from January of 1975 to July of 1976.

The 1974 developed pure premium, trended and projected, should be the best possible estimate of expected losses for the 1976 year on the assumption that the frequency of losses per insured vehicle has not changed during the period. If that assumption (which has always been made in past Bureau filings) is not to be accepted an additional adjustment factor must be introduced. The frequency adjustment completes the steps in deriving a final estimate of 1976 losses. This estimate is known as the "1976 Rate Level Pure Premium". Next there is introduced an expense provision, including both the loss

adjustment expenses which were not allocated to particular claims and the general expenses of the carrier, including taxes, commissions, administration and other costs. Part of this expense loading is designed to provide a profit allowance, traditionally 1% of the premiums in Coverage A and 5% of premiums in all other automobile lines. The 1976 rate level pure premium, after loading for expenses and profit, becomes the recommended 1976 average premium rate. Most of the additional entries shown on the actuarial exhibits are simply proportionality factors to show how current rates or past pure premiums can be brought up to the derived 1976 levels.

At each step in the actuarial derivation of 1976 rates, methodological arguments can easily arise. There is no magic to the techniques, and there is no objectively perfect way to achieve any of the fundamental goals. The future is always unknown. This year's testimony raised substantial doubts about the Bureau's techniques and conclusions in the five areas of the process I have noted by underlining. The first controversy centered around the translation of observed pure premium into developed pure premium.

1) Development Factors. In the Bureau's advisory filing, a factor of 1.085 is used to bring presently observable 1974 losses to an expected ultimate value. This factor is derived from past data on how loss reserves have changed over time on their way to ultimate values. Two underlying phenomena are responsible for the changes. First, there are claims which have not yet been filed. Presently available data is certain to be an understatement of ultimate data if some losses are not even known about yet. This can be called the IBNR (Incurred But Not Reported) component of development. Second, there are inaccuracies in individual claim adjusters' estimates of how large filed claims will turn out to be when finally closed. Inaccuracies of this sort are particularly likely in claims which require court proceedings or which are to be paid out over long periods of time.

The need for some sort of loss development is not disputable. There are dangers, though, to the accepted methodology. One such danger is the possibility that, if development factors are always on the increase over a long period of time, the insurers' financial statements will show consistently lower loss figures than will rate

filings based on the same events. It might be tempting for insurance companies to live in a world where rate requests show high losses and shareholder reports show low losses. Obviously this should not be encouraged. Testimony at this hearing only scratched the surface of the problem, and the record does not permit any conclusions to be drawn at this time. If future proceedings provide evidence of this abuse, a remedy will have to be ordered.

The other danger in the Bureau's development methodology is simpler in both concept and cure. A good development factor is an accurate one. The technique used to support the Bureau's 1.085 figure is very far from scientific. It uses a sub-element of the available data which is highly volatile over time and highly subject to transient impacts. Last year's recommended development factor was less than 1.0. The year before it was nearly as high as this year's. The forces creating the need for development factors are not likely to be moving on a rapid, straightline course. Certainly the Bureau's data is not doing so. A rapidly fluctuating variable is seldom well estimated by its last observed value. It is not appropriate to do so here. Dr. Peters, the

Department's Chief Actuary, has spent considerable time on theoretical studies of the accuracy of development factors. He testified that they should be computed from several years' data strings, in effect applying a sort of moving average concept to stabilize the random jumps and drops. Mr. Alexander, the Bureau's actuary, also testified that stabilization of a rapidly fluctuating development factor would make good theoretical sense. I concur fully and will not permit the use of the Bureau's proposed 1.085 factor. Dr. Peter's recommendation of a 1.038 two year development factor is to replace the Bureau's factor wherever it appears.

2) Trend and Projection Factors. In bringing a past year's data up to a future year's cost levels, there are two distinct approaches that can be followed. One is to look for the trend in insurance carriers' average claim costs. This is known as the "internal" data approach. The other is to look at selected inflation rates from the outside economy called "external" data. The Bureau has complained that the Department jumps from one approach to the other to suit its convenience. The complaint shows a misunderstanding of the appropriate governing principle.

The best choice between external and internal data for the ratemaker is always the lower of the two. When the external series shows a lower inflation rate than the internal series a vital normative component of rate-making is removed by looking only to the internal data. Regulation must provide cost control as well as cost observation. The use of external data provides such a control in this circumstance by holding the regulated industry to the same discipline as the outside world. On the other hand, when the internal series gives a lower result, there is no excuse for the regulator to pass out free money to the regulated industry by ignoring that fact. The industry may be congratulated for its frugality but the internal series, in such a case, clearly becomes the right statistical choice. In unusual circumstances of cost control neglect or cost control opportunity, a prudent regulator might justify a trend smaller than either the internal or external data appeared to support. Ordinarily, whenever an accurate internal series and an accurate external series are available, the rule of reason calls for the smaller of the two.

The Bureau's advisory filing employed the internal approach but its exhibits, testimony and brief demonstrated a full acceptance of the external approach. The Bureau's brief does quarrel slightly with the Department's numbers, seeking a combined trend and projection factor of 1.178 for Coverage A instead of Dr. Peters' recommended 1.158. Dr. Peters' exhibit contained a numerical error and cannot be used without correction. The Bureau's 1.178 figure is similar enough in methodological derivation and accurate enough numerically to be accepted for this decision. The Bureau's original recommendation, for a 1.233 combined trend and projection based on internal data, is not to be used.

3) Frequency Adjustment. A running debate developed at the hearing over frequency adjustments. It cannot be challenged that, since the introduction of the bodily injury no-fault law in 1971, reported accidents have declined rapidly. Registry figures show that reported accidents were fewer in 1971 than in 1970, fewer in 1972 than in 1971, fewer in 1973 than in 1972, and fewer in 1974 than in 1973. The Bureau's original position denied that any trend is displayed in these figures while arguing that 1974 was an aberrantly low year due to the effects

of the fuel shortage. This explains the Bureau's defense of never having used a frequency adjustment in earlier filings and provides the rationale for asking a 1.05 upward adjustment in this filing. Dr. Peters, for the Department, took the position that the frequencies should be trended, much as costs were trended. He suggested by implication that downward frequency adjustments should have been made in past filings and he recommended a further downward adjustment of 0.95 for this filing.

By the close of the hearing, the Bureau had changed its position. The Bureau brief states that "on careful consideration" the Bureau found Dr. Peters' method to be more exact. Then, not surprisingly, the brief goes on to point out how Dr. Peters' method could be used to derive a factor of 1.10, implying twice the adjustment in the Bureau's original request, if a different data base were substituted for Dr. Peters' choice. The Registry divides injuries from accidents into fatal, serious, minor visible and non-visible classes. The argument centered on which class or combination of classes best paralleled Coverage A claims. No rigorous study was presented by either side, and the argument remains

unresolved. Dr. Peters sees the total as most meaningful but also indicated that a weighted average might be useful. The Bureau seeks to use only those categories it views as most likely to result in claims. Both sides have merit on the assumption that a trending method is to be used at all. At this point, I am not convinced that any adjustment or trend is called for.

An analogy might be made to the height of a growing adolescent. If one observed the typical person's height every birthday from the eighth to the eighteenth, an upward movement would be glaringly obvious. In predicting future years, though, it would be fallacy to use a simple trending technique. By ordinary regression trending (Dr. Peters' method of frequency adjustment), one could easily forecast the growth of a twenty foot adult. It takes an understanding of the underlying causal phenomena to avoid the forecasting error. In the case of accident frequencies, the same error might easily be made. The falling report rates have been due in part to the no-fault law, in part to the increased prices of fuel, in part to lower speed limits, and there are doubtlessly several other causes at work. A poor

statistician might project that accident frequencies are headed rapidly toward zero. Frequency trending is not the same as inflation trending, though, where the current rates may continue forever. Frequencies are being pulled by external, changing forces, some with relatively short life spans. One can say with great confidence that the no-fault laws have pushed frequencies downward year after year since 1971. Equally certain is that any such effect must eventually come to an end. The data on non-visible accidents may lead some to believe that the end is at hand. The effects of the energy crisis are not as clear as those of the no-fault laws. Nor are the effects of rising automobile prices or a host of other influencing variables. Whether their impacts will diminish or rise next year is an extraordinarily tough question. None of the data exist in stable, easily trended series. Earlier rate decisions by my predecessor used a frequency adjustment to reflect his judgment that the no-fault law was still having a marked impact. I would have done the same in those years. This year, though, I can no longer do so. Rejecting the statistical trending method that both Dr. Peters and the Bureau were willing to use, I could use a frequency factor

only if strong judgmental evidence were available to justify one. This year's hearing provided no compelling evidence that 1976 frequency rates will either be higher or lower than 1974 rates. What may be gained as a result of changes in one underlying variable can just as easily be lost as a result of changes in another. In the words of the Attorney General's brief, "...one frequency adjustment is as good as any other...In the light of this state of the art, it is suggested that the only proper frequency adjustment factor is 1.00". A frequency factor of unity has, of course, the same practical impact as the traditional rate-making method's omission of any frequency factor. It is so ordered for 1976 rates.

4) Expense Loading. The traditional method of allowing insurers a rate provision for expenses has been to multiply the loss pure premium by some expense allowance factor. This has had the effect of keeping the expense share of each premium dollar constant over time. My predecessor pointed out in his 1975 rate decision that this method is badly flawed. If a rapid inflation in medical costs causes loss payouts to jump one year, there is no reason to expand the allowance for insurance company salaries

proportionately. The 1975 decision ordered that expenses be trended separately and in response only to those inflation rates specifically impacting them. The Bureau did not appeal last year's finding but it returned to the older methodology in this year's advisory filing. There is no doubt in my judgment as to the soundness of separate trending. The Bureau's case included no convincing defense of the older method. The work in the advisory filing must be accordingly corrected.

The Department's approach to the problem is to break total expenses down into two subdivisions. The first covers unallocated claim adjustment expenses and is assumed to vary closely enough with loss amounts to justify the traditional treatment. Dr. Peters' suggested factor of 1.149 makes reasonable provision for these expenses. For all other expenses, Dr. Peters uses a method very similar to the loss pure premium method. He begins with a dollar valued rate for expenses and profit in 1974, and then applies a trend and projection factor to achieve a 1976 rate. The trend and projection factor used here is based solely on inflation in insurer expenses. The trended rate derived in this manner can be called an "expense pure premium".

When it is added to the loss pure premium (after application of the unallocated claim expense adjustment factor), a complete 1976 premium rate is obtained. The method makes good sense.

It can be improved, though, by better subdivision. Expenses as reported by the Bureau contain four major elements: adjustment costs; acquisition and field supervision costs; taxes, licenses and fees; and general administrative costs. The profit provision should be taken out of the last of these as a fifth element. Adjustment costs are treated by Dr. Peters in the same way they are treated by the Bureau: they are allowed to vary in fixed proportion to loss payouts. Dr. Peters combines all of the other elements into his expense pure premium, and these are trended by inflation rates different from those applied to losses. In fact, though, the profit provision and the premium tax component of taxes, licenses and fees are directly related to total premium volume. They should vary neither with the loss pure premium nor the expense pure premium. They should be treated instead as a third subdivision to be factored into the rate after the addition of the expense pure premium to the adjusted loss pure premium. A provision of 2.3% for

premium taxes is adequate, with all other parts of taxes, licenses and fees being handled in the same manner as general expenses. The proper profit provision will be discussed later.

The Bureau claims in its brief that the acquisition expenses, too, are fixed in relation to premium by force of contracts with agents. As my predecessor noted in last year's decision, these contracts are renewable yearly. Insurance companies are free to allocate and expend their expense dollars as they deem prudent. Trending the total expense allowance according to the governing inflation rates in no way forces the companies to violate existing contracts or even to set future contracts to any particular level. The method and the amount of agents' compensation remain private contractual matters. The total amount allowed for insurer expenses remains a matter for regulatory overview. Both acquisition costs and general expenses are fully suited to the expense pure premium method that the Department calls for.

The combined trend and projection factor for this expense category was set by Dr. Peters at 1.0929. The Bureau asked that, if separate trending was to be used, the combined trend and projection factor be set at 1.198. Neither

party offered fully convincing evidence on the subject. Dr. Peters noted that internal data showed only a 4.5% cost increase from 1973 to 1974 but he did not deal with the likely possibility that subsequent inflation was somewhat higher. The Bureau chose to disregard the internal data altogether. Due to incompleteness in this year's hearing record, my rule calling for the lower of external or internal trending can not be accurately applied. Neither series seems to be available in useful form. I see little alternative other than to average Dr. Peters' probably understated factor and the Bureau's probably overstated factor. The combined trend and projection factor for expense pure premiums in this year's rate calculation, therefore, is to be 1.145. The factor is to be applied to Dr. Peters' figure for Expense and Profit Pure Premium (1974) only after that figure is amended to remove the premium tax provision and the profit provision it contains. Next year's hearing participants should be prepared to deal with the expense matter more rigorously.

5) Underwriting Profit Allowance. The expense pure premium approach described above applies only to the acquisition,

field supervision, taxes, licenses and fees other than premium taxes and general expense categories. Claim adjustment expenses were loaded proportionately onto loss pure premiums in the traditional manner. Premium taxes were to be proportionally loaded onto the combined loss and expense total in the amount of 2.3%. An underwriting profit allowance was also to be so loaded but the amount is as yet undetermined. The traditional methodology has called for a 1% profit allowance on Coverage A and a 5% profit allowance on all other coverages. This is the single shoddiest component in the quasi-scientific process of ratemaking. The 1% and 5% figures hang solely on threads of imagination unsupported as measures of reasonable profit in either hearing evidence or actuarial literature. The goal of the regulator in an industry with insufficient competition is to set prices which allow the average regulatee a rate of return on invested capital roughly equal to that earned by businesses with similar riskiness in the unregulated, competitive sectors of the economy. To do so with any modicum of professionalism requires an estimate of the rates of return on capital in both the regulated and non-regulated sectors. Knowing that an insurer earns 1% on premiums is grossly insufficient if one wishes to estimate that company's return on capital.

In May of this year, I introduced an approach to coping with the rate of return problem in a decision on workers' compensation premiums. At issue then was the 2.5% underwriting profit allowance in the compensation line. The following language is from that decision:

"Long before I became Commissioner, my work as a college economics teacher and as an actuarial trainee had made me aware of the debate over profit allowances in casualty insurance. It is absolutely incomprehensible to me how the industry could have successfully argued for so long that an underwriting profit margin should be programmed into the rates without regard for the investment implications of the business. It does not take an economist to know that if someone takes a dollar from you and returns \$.95 one year later, his profit on the transaction was the sum of the five cents directly taken and the gain from the use of your money for the year's period. At this hearing the petitioning companies have asked for an underwriting profit allowance of two and one-half cents on every dollar of premium, to be calculated without reference to the timing of the payments.

This is not a 2 1/2% profit in any meaningful sense of the phrase. To compute the true profit one must count all net gains from the insurance transaction, underwriting and investment, and compare those gains with the capital at risk in the transaction. This is the most commonly accepted rate of return measure in the relevant economic literature. While a 2 1/2% underwriting margin is not necessarily unreasonable, it is only a guess at the proper figure until this sort of calculation is made.

On my urging from the bench, the petitioning companies presented what may be the first useful cash flow picture ever used at a Massachusetts rate hearing. It is my intention to use this hearing and decision to introduce a method by which such a cash flow exhibit can be incorporated into the rating process. It has long been recognized that investment income is an integral part of the return on any insurance transaction. Multitudinous problems emerge, however, when one tries to measure the actual investment income accrual from any specific policy or line of business.

Cash available for investments is simply pooled within a particular carrier and invested in many asset types. Who can say what the results were for the particular funds that came from the workmen's compensation line? Furthermore, the results on investments fluctuate so widely from year to year and from company to company that it is difficult indeed to use the data in any across-the-board rating process where minimal yearly fluctuations are a virtue. These problems together form the Gordian Knot of measuring investment return in insurance.

The Knot, however, can be cut. Finance theorists have long ago established that all investments should have an expected return equal to the rate one could obtain on a riskless investment of otherwise similar characteristics plus a premium to compensate for any risk absorbed by the investor. In other words, every available cash flow dollar in insurance could be committed to the safest possible investment and a short-term predictable return would be obtained. Dollars committed to riskier investments might pay more on an expected basis but would expose the insurer to a risk

of greater fluctuations in investment results. It is, therefore, appropriate to say that the return on the safest available investment, probably U.S. Treasury securities, is the minimum standard for investment results in any year. A risk averse insurer can always get the Treasury Bill rate. Insurers wishing to take a somewhat greater risk may earn more or less, but the decision was theirs to make. All one needs to know accordingly is the amount of money available for investment from any line of business in order to know the riskless available investment return. It is this hypothetical figure, what the risk avoiding insurer could have earned, rather than the actual investment results, that should be used in the ratemaking process. Thus, in one move, the problems of allocation by line, intercompany differences and annual fluctuations are reduced to moot. Compute the cash available for investment from any line, apply the available risk-free rate of return, and use the potential return so derived as the investment component of total return. The impossible was only impossible because the task was

incorrectly defined.

In the particular case at hand, the Bureau produced an exhibit of cash flow from workmen's compensation underwriting. Unfortunately, because my demand was on very short notice, the results so produced were only approximations of the true picture. Both the Bureau and the intervenor challenged the data's precision. While I reach no conclusion this year as to the actual return realized on compensation business or the fairness of that return in relation to returns in other industries, I will expect an analysis of this sort to accompany each and every future filing. As the techniques become sufficiently refined and precise, rating decisions will depend heavily on this sort of work".

Since the release of the workers compensation decision in May, the Bureau has obviously studied the matter carefully. Bureau exhibits and testimony demonstrate solid understanding of the new method's foundations, and the hearing record is now sufficiently detailed to allow the method its first practical application.

The aim of this exercise is to find that level of underwriting profit allowance which, if earned along with minimum reasonable investment results, would produce for the average carrier a rate of return on capital equal to that achieved by a typical non-regulated firm of similar risk characteristics. Five sequential steps are involved:

1) A minimum reasonable investment yield must be estimated. Lying at the heart of this entire approach is the assumption that safe investments are always available to an insurer. United States Treasury securities might not be the highest yielding investments the market has to offer, but they are available in massive quantities at negligible risk of default. The return obtainable on this sort of investment is a minimum standard to which any institutional investor can reasonably be held. Higher returns may well be achieved through riskier investments, of course, but losses are also a possibility as the risk increases. As long as policyholders are neither punished for results poorer than the minimum standard or rewarded for results superior to the minimum standard, the use of a hypothetical return is entirely fair as a ratemaker's tool.

While the available safe return for next year is obviously impossible to measure at this point, a statistically unbiased estimator is readily available in the average yield on current Treasury securities, weighted by the cash flow pattern from the line of insurance under consideration. This weighted average is taken as the minimum reasonable investment yield.

2) The cash flow from the insurance line must be discounted to a present value at the minimum reasonable investment yield. Any normal insurance business will generate premium dollars at a rapid rate during the early months of a policy term and then gradually pay out loss dollars over a longer period of time. If all expenses and profits, as well as losses, are accounted for in the payout stream, the total payouts will exactly equal the total receipts. The net cash flow - receipts minus payouts - will add to zero. It is the pattern of build up and release, though, that generates investable funds. If the net cash flow stream is discounted to a present value by some yield factor, the value of the cash flow stream in a market paying that yield is obtained. If the yield is the one obtained in step 1 and the stream is valued as of

the middle of the next policy period, the result is a minimum expected investment return expressed in dollars.

3) Figures using other bases must be translated into return-on-capital equivalents. The work in step 2 allowed one to express the minimum reasonable investment result as an absolute dollar figure or as a percentage of premium volume. The underwriting profit allowance is automatically expressed as a percentage of premium volume. For any trial level of underwriting profit allowance, the two can be added to obtain a total return as a percentage of premium volume. This must then be multiplied by an appropriate premium to capital ratio to convert it to a return capital. Next there must be an addition to this figure equal to the return that can be earned from investing the capital base itself. The sum represents the total pre-tax return on capital for an average insurer writing only the business represented by the cash flow pattern. A tax conversion factor is then applied to produce an after-tax return on capital. It is this figure which can be compared to equivalent figures for other industries. Step 3 has been completed as soon as a table has been constructed allowing any trial figure for underwriting profit to be traced through to its implied return on capital or, conversely, allowing any target return on capital to be traced backward to its implied underwriting profit allowance.

4) Rates of return in other industries must be gathered for comparison. In order to set the target rate of return for an insurance line, one must examine the returns in those businesses selected as comparably risky, unregulated fields of industry. Data on rates of return in American business are widely available in numerous published sources. The task here is to select a reasonable sample group and to choose the right figures and the right time periods for comparison with the target rate of return in insurance.

5) The proper allowance for underwriting profit must finally be set by using the information found in each prior step. Once a target rate of return is established by step 4, the table constructed in step 3 will allow the computation of the correct underwriting profit allowance. This can be done either by algebraic manipulation or by trial and error. The allowance so computed will be the only one which meets the conceptual standard. If earned along with minimum reasonable investment results, it will produce for the average carrier a rate of return on capital equal to that observed in typical non-regulated firms of similar risk characteristics.

Although the method described above stands in sharp contrast to the traditional ratemaking approach, all of the parties to this year's hearing seemed inclined to accept it as reasonable. The Bureau's brief explicitly acknowledged its concurrence with the three central assumptions: "that it is appropriate to consider investment income in determining the overall return from writing insurance; second, that in fixing rates it is appropriate to postulate a "risk free" investment policy or, in other words, that the company, not the policyholders, should bear the risk and receive the benefits of a higher risk investment policy; and third, that a regulated industry should be permitted to earn a total return comparable to the return in non-regulated industries". Nowhere in the brief of the Bureau or that of the Attorney General was there a serious challenge to the foundations of the methodology.

Agreement on the numbers, however, clearly does not exist. Four major areas of disagreement can be identified from the various briefs and testimonies:

(a) The minimum standard rate of return. The Department took the position that a yield of 7.42% (after correction of a subtraction error in Exhibit 74) represented a fair

standard based on weighted Treasury yields. The Bureau called for a change in the maturities chosen for the weighting, which would reduce the yield to 7.1%, and then for a change in the cash flow base, which would further reduce the effective yield to 5.9% on the investment of present capital. The Attorney General's office attacked the choice of the Treasury securities standard as too conservative and suggested a yield of "8.2% or more" based on available AA or AAA corporate bond yields. The Bureau's first argument is in conflict with a reasonable interpretation of the concept of a yield curve. While it is true that thin markets will create great differences on occasion between the yields on two similar securities, financial theorists have generally disregarded such jagged yield profiles in favor of a smoothed yield curve for analytical purposes. The Bureau's case for a 7.1% yield standard is based on an observed discontinuity at the long maturity end of the curve and must accordingly be rejected in favor of the Department's calculation, which is far more consistent with a smooth yield curve. The Bureau's second argument is also weak. It is apparently grounded in Mr. Devers' testimony for the Bureau that companies are not able to invest their

cash flows in an ideal manner because their funds may already be committed to long term and illiquid investments. This argument contradicts an agreed-upon foundation of the methodology: that one must ignore all actual investment policies and hypothesize a simpler policy for purposes of standardization. Were all insurers to invest only in highly liquid Treasury securities, Mr. Devers' problem would never arise.

The Attorney General's point has more merit. Where the Department seeks to hold insurers to the results of an available minimum risk policy of investment, the Attorney General believes that they should be held to the results of a reasonable and prudent policy of investment. This change would allow the application of higher yields to the cash flow pattern, and thus would lower the derived allowance for underwriting. The record does not contain expert testimony on this difficult theoretical point. While reserving future judgment on the matter, I am as of now convinced that the Department's figure is acceptable. If the Attorney General's request were granted, it would require a corresponding change in the measurement of risk in the insurance business applied later in the derivation process. Such a change in technique may be considered in the future, but it is not supported by the analytical work

presented by any party at this year's proceedings. For the set of assumptions outlined at these hearings, the choice of a 7.42% minimum standard yield is the most reasonable of the three propositions.

(b) The Premium to Capital Ratio. The Department used a ratio of 2 to 1 for converting return on premium figures to return on capital equivalents. The Bureau's brief requested that a 1.5 to 1 ratio be used. Unfortunately, neither party was able to provide ironclad justification for its position. The Department's choice was based on a regulatory guideline of long standing duration, put to writing by Roger Kenney and often referred to today as the Kenney Rule. The rule states that a prudent insurer will maintain a ratio of 2 to 1 between its casualty insurance premiums and the capital base which supports those writings. Higher ratios are considered signs of abnormal risk by strict Kenney Rule adherents. The standard has been cited countless times in the literature of insurance regulation and insurance management.

For many years and until very recently, the Kenney rule standards have been met by most large insurers. Kenney's work calls for a tighter ratio in fire lines (one dollar

of capital for every dollar of unearned premium reserve) than it does in the casualty lines. According to the Bureau's brief, the overall average premium to capital ratio for major insurers over a recent ten year period was 1.43 to 1. Weighting the two Kenney rules by fire and casualty premium volumes, one might well find the overall Kenney ratio quite close to the actual fact. In the past few years, though, underwriting losses and securities market reversals have changed the picture. Testimony by Mr. Ward for the Bureau indicated that many, if not most, companies are writing today at ratios exceeding 3 to 1.

It is probable that if one were to set the premium to capital ratio used here in accordance with observable ratios today, a ratio of three to one or higher might be used. The Bureau, citing the ten year average in its brief, seems to be arguing for the use of an observable ratio. The attraction of an observable ratio, whether on a one year base or a ten year base, is considerable for many reasons. The dangers, however, are also considerable. Like the dispute over the standard of investment performance to which an insurer should be held, the

dispute over the premium to capital ratio has profound implications for the risk comparisons to be made with other industries. Writing at a 3 to 1 capital ratio, an insurance company might be considered far riskier than a particular manufacturing business. Writing at a 1 to 1 ratio, the same insurer might be judged far less risky than the same manufacturer. This year's hearing record was built on the assumption of a minimum risk investment policy and a reasonable and prudent premium to capital ratio. It could have been based on other assumptions and, with corresponding changes in the overall rate of return criteria, it should have yielded the same results. At future proceedings, I will look forward to hearing how an objectively observable premium to capital ratio can be incorporated into the methodology. At this time, however, I must reject both the high currently observable ratios and the Bureau's low ten year ratio as inconsistent with the remainder of the record.

The Kenney ratio is far from perfect. It has been used as a guideline by many state regulators for many years, but it has been attacked almost as often as it has been used. Clearly, it incorrectly disregards the composition of the risk portfolio in its sweeping dictum. An insurer

writing a million independent small risks at fair premiums has far less need for permanent capital than an insurer writing a handful of large catastrophic risks at questionable premiums. For the former, a two to one capital ratio might be ultra-conservative. For the latter, it might well be dangerous. Better rules than the flat 2 to 1 ratio could doubtlessly be derived, but the Kenney Rule bears the testimony of longevity. As a rough guideline for the average company at the average time, its wide acceptance seems as yet uncontested. As a reasonable and prudent premium to capital ratio, it meets the requirements of this hearing. Until replaced by a better technique, it can be easily accepted as a building block for the rate of return methodology.

(c) The Rate of Return In Comparable Businesses. The Department's testimony called for a 10.5% return on capital in the insurance business. This figure corresponds with the rate of return on capital reported by Forbes magazine for 850 of the largest U.S. corporations in the last twelve month period. The Bureau's brief seems to accept the source and the twelve month time period, but it calls for the use of a return on equity which is closer to 14%. The Attorney

General's brief challenges the 10.5% standard as too high, first, because the insurance industry may be less risky than the manufacturing sector, and, second, because the calculation of the 10.5% figure omitted the results of some 43 major companies which ran deficits in the twelve month period. The Attorney General's second point is obviously correct, but there is no precise compensation possible. Taking the 43 deficit firms as zero items provides some improvement and moves the allowable standard from 10.5% down to 10.0%. The other two points of debate raised by the Bureau and the Attorney General are more complicated to deal with.

The Bureau's question revolves around the choice of a base for the rate of return comparison. Several witnesses noted that insurance carriers seldom borrow in the long term debt markets. As a result, return on capital and return on equity are essentially equivalent in the case of insurance firms. The same is not true in the manufacturing sector, where long term debt is a major element in the capital structure. The Department's work compares the insurance return with other industries' return on total capital. The Bureau seeks to confine the non-insurance

base to the equity portion of the capital structure. I must reject the Bureau's reasoning. What this entire analysis seeks is the equilibration of returns, inside and outside insurance, on capital at risk. A company which builds its foundations by issuing long-term debt along with a minimum amount of equity is, in truth, putting the same amount of capital to risk as a similar concern which issues only equity. The Securities and Exchange Commission gives implicit recognition to this fact by insisting that all new issue prospectuses prominently display the total capitalization of the issuer on an early page. Total capital, not equity, is the correct base for a rate of return measure. The fact that insurance carriers seldom issue long term debt does not justify their receiving an extra return on their capital bases.

The Attorney General's question about equivalent riskiness is one which will probably be debated for many years to come. The Department has implicitly assumed that the insurance industry, hypothetically following a minimum risk investment strategy and writing at a reasonable and prudent premium to capital ratio, is of the same riskiness as U.S. industry as a whole. The Attorney General argues

that the insurance industry's market stability and regulation make it less risky than American industry as a whole. No party to the hearing offered any solid evidence on the subject.

Several years ago I remember having examined the history of insurance and manufacturing profit variability over a forty year period. It was clear that insurance, in the depression of the 1930's and in subsequent economic troughs, enjoyed considerably more stability than did manufacturing. On these grounds, insurance could be considered as the less risky industry in times past. The argument, though, is not easily extended to the present. Where manufacturing is highly vulnerable to recession and not as directly threatened by inflation, insurance lives in an opposite world. Inflation is the bane of insurance performance watchers. As a result, the test of which sector is riskier may really come down to a prediction of the general economic future. If inflationary times are in store, insurance is probably the riskier sector. If recession holds the greater threat, manufacturing is likely the riskier. The choice is of no small importance to this analysis. It is a necessary outcome of the rate of return methodology that those lines where cash is held the longest will demonstrate the smallest needs for underwriting margins. Yet those are the very lines most subject to the adverse

effects of inflation. As the risk of accelerating and unanticipated inflation increases, the slow pay lines become more and more risky. Only in stable economic environments is the long tailed cash flow really worth what it may appear to be at first glance.

The current economic climate leads me in the direction of the Bureau's arguments on riskiness. Were I to guess whether manufacturing or insurance would have the more stable performance in the next few years, I would have to place the greater confidence with manufacturing. It follows, therefore, that I must reject not only the Attorney General's position of lesser risk in manufacturing than insurance but also the Department's position of equal risks. Some upward adjustment must, therefore, be made in the Forbes base index if that index is to provide a target rate of return for insurance. Anyone accepting my judgment that the near future will be dominated by inflation should agree that such an adjustment is needed. In the absence of any evidentiary material on the record, agreement on the proper amount of the adjustment is less likely. Ideally, the amount will be sufficient to place the target rate of return just enough above the economy-wide rate of return that perfectly rational average in-

vestors would be indifferent as to whether their capital was put at risk in insurance or elsewhere.

On the basis of recent years' operating results in insurance as compared with other industries, this amount may have to be substantial. It would probably be within my discretion to allow no such upward adjustment this year because the Bureau failed to support an adjustment at the hearing. While this solution may be procedurally fair, it seems less than logically fair. I can not acknowledge in one part of this decision that I accept a high prospective inflation rate for trending purposes, then reject the necessary conclusions of this acceptance in another part of the same decision. The rate of return methodology is so new that the usual standards of preparation can not be demanded here. It is incumbent upon me, therefore, to provide a judgmental estimate of the proper adjustment without support. For this year's calculation, I will add one and one-half points to the Forbes index base as a factor for unforeseen economic contingencies. That base, corrected to 10.0% in line with the Attorney General's earlier point, generates as a target rate of return on capital in insurance the final

figure of 11.5%. This is the only time, though, that I will make such an adjustment without a more specific and direct supporting record. Next year's hearing participants are instructed to present more formal data and analysis on this thorny problem.

(d) The Tax Conversion Factor. The Department's exhibits employ a pre-tax to after-tax conversion factor of .52, based on the prevailing maximum Federal tax rate of 48%. The Bureau does not contest the factor, but the Attorney General urges that an observable rate of effective taxation be used in its stead. No evidence was presented by the Attorney General to show that lower rates were actually paid. Even if such evidence were available, the observations would have to be corrected so as to conform with the assumptions of the methodology. One must use here the rate of taxation borne by a hypothetical company following a minimum risk investment policy and writing at a reasonable and prudent premium to surplus ratio, not the rate paid by the average company in the marketplace. I see no reason at this time to expect that the sought-after rate will be anything other than the maximum rate. The Department's factor should, therefore, be used.

Given the resolutions of the numerical questions above, it is now possible to compute the appropriate underwriting profit allowance for this rate determination. The Department's exhibit for step (3) of the rate of return calculation, unfortunately, does not allow the job to be done precisely. That exhibit begins with a discounted cash flow value drawn from the Bureau's cash flow presentation. The problem lies with the use of a 4.33% profit allowance in the construction of the cash flow information. Since it is that profit allowance we must derive by this exercise, it can not be assumed in an intermediate step. The necessary correction is substantial in magnitude but even longer in algebraic exposition. Suffice it to say here that without this correction the Department's methodology would generate a permissible underwriting profit allowance of a negative 2.9%. With the correction, the allowance becomes a negative 3.85%. In keeping with the actuarial tradition, the figure can be rounded to the nearest whole unit, negative 4% in this case. This is the permissible allowance for underwriting profit to be used in this year's bodily injury rates.

A few words of caution are called for here. Lest anyone misunderstand, it should be emphasized that the

negative 4% underwriting profit called for above is not simply a substitute for the traditional allowances. Where the old 1% Coverage A allowance and the 5% allowance on all other lines remained inviolate from year to year, the new concept produces an underwriting allowance which will vary over time. In years when potential investment returns are high, the profit required on the underwriting side will be correspondingly low. In years when investment yields are low, the underwriting allowance will be higher. While it is not likely that next year's hearing will generate a radically different profit allowance, the possibility of such a change is certainly present. Over a longer time period, it is nearly inevitable that the allowable margin will shift. The negative 4% figure is not meant to be graven in stone.

A second difference between this year's profit allowance and the traditional allowances will show itself when the property damage rates are considered. The arbitrary 5% underwriting profit allowances were used indiscriminately in slow-pay and fast-pay lines alike. The rate of return analysis shown above was applied only to the relatively

slow-paying bodily injury segment of the business. Because the Bureau's cash flow data was prepared as a composite of only the bodily injury lines, the negative 4% figure can be used only in those lines. Anyone familiar with automobile insurance is aware that the physical damage and property damage lines are qualitatively different. They are not great generators of cash flow and, presumably, the rate of return analysis will call for a far higher underwriting profit there to compensate for the reduced investment income. It is wrong to assume that a negative underwriting margin will be called for in the property damage lines.

My third caution, I hope, is unnecessary. It would be most disappointing if readers of this decision describe my order for a negative 4% underwriting margin as an order that insurance companies lose money on writing bodily injury coverages. The entire methodology is designed around providing the average carrier with a fair profit. I have ordered only that the amount collected in premiums be less than the amount absorbed by expenses and paid out in losses. The investment returns available on the cash flow can more than make up the discrepancy. My order calls for a fair overall return on capital, not a giveaway program or

governmental confiscation.

Rates are to be computed for Private Passenger Coverage A in accordance with the preceding pages. Summarizing resolutions of the points of contention:

1) A two year average development factor of 1.038 is to replace the Bureau's one year factor of 1.085.

2) A trend and projection factor of 1.178, as called for in the Bureau's brief, is to be used instead of either the Bureau's initial recommendation or the Department's recommendation.

3) No frequency adjustment is to be used. The Bureau's request for a 1.05 factor or, as amended, for a 1.10 factor is denied. The Department's request for a .95 factor is likewise denied.

4) Expenses for adjustment are to be loaded onto loss pure premiums by a multiplicative factor of 1.149. Expenses for acquisition, field supervision, and general administration (including taxes, licenses and fees other than premium taxes) are to be allowed for under the "expense pure premium" method with a trend and projection factor of 1.145. Expenses for premium taxes are to be loaded onto the loss and expense pure premium in the amount of 2.3% of the final premium.

5) The allowance for an underwriting margin of negative 4% is also to be loaded onto the loss and expense pure premium total. In this case, the loadings for premium taxes and underwriting margin can be effected together by applying a factor equal to the reciprocal of 1.017.

An overall rate calculation will be available through this department. Appropriate manuals are to be prepared accordingly.

Other Vehicles - Coverage A

Rates for Commercial Vehicle Coverage A are computed by the Bureau using the same development factor, trend and projection factor, frequency factor, and expense and profit loading methodology as were applied by the Bureau to the Private Passenger rates. No party to the hearing challenged the appropriateness of applying uniform factors to the two coverage types. The Bureau's Commercial Vehicle recommendations are, therefore, to be modified in exactly the same manner as I have ordered the Private Passenger recommendations to be modified. No other significant issues were raised with respect to Commercial Vehicle Coverage A rates.

The Bureau has suggested that rates for private livery and garage-dealers, which have been made separately in the past, be made from now on as a function of the rates for closely related private passenger classes. The Bureau has further recommended that motorcycle rates on Coverage A, which will continue to be made separately, be reduced by 15.4% from 1975 levels. Both recommendations are hereby accepted.

The greatest area of contention in Coverage A rates outside the private passenger group involved taxi premiums. The experience for taxicabs clearly showed a persistent drop in the number of claims over each of the last several years. Witnesses for the taxi owners convincingly ascribed the drop not only to the no-fault factors which affected private passenger experience but also to a secular decline in taxi usage in Massachusetts. Under ordinary circumstances, this is the sort of case where a judgmental frequency factor might be logically applied. The problem is the lack of statistical credibility in the data. By traditional actuarial methodology, just over 1000 independent claims is considered the threshold after which data becomes reliable. When fewer claims exist,

there is generally some reliance on past data or underlying expected experience. The Bureau, therefore, has used a multi-year average in computing taxicab rates. The result, a substantial increase in taxi rates, flies in the face of all logic. Credibility theory nowhere permits a dramatically falling series to be averaged far back into the past and far beyond the point at which full credibility is achieved. If the Bureau wishes to insist on adherence to this dubious element of traditional methodology, it should look only at the last 1084 claims. Such an approach can be closely approximated by giving the 1974 experience a weight of $2/3$ and the 1973 experience a weight of $1/3$ in computing the loss pure premium base. The Bureau's method of equal weights is to be rejected and replaced. Taxi rates are to be recomputed using the weighting described above, a two year average development factor, and the same negative profit loading as was mandated for private passenger cars. If the downward trend in taxi claims continues, the Bureau is instructed to estimate an appropriate judgmental frequency adjustment in the computation of next year's rates.

All Vehicles, Coverage B

Coverage B extends the bodily injury liability protection of Coverage A to certain otherwise uncovered accidents and then upward to higher limits at the insured's option. The portion of Coverage B which extends basic limits protection to additional accident situations is treated separately in ratemaking from the portion which provides increased limits. The current rates on Coverage B basic limits are a flat \$8 for private passenger vehicles and a flat \$6 for commercial vehicles. The Bureau has advised a rate decrease of \$1 for private passenger cars and no change for commercial cars. The calculation, however, was not in keeping with the methodological rules spelled out earlier in this decision. Rates must be recomputed to embody a two year average development factor, the same trend and projection factors as were used in Coverage A, a frequency adjustment of unity, separate trending of expenses as described in the Coverage A section using the same trend and projection factors, and an allowable underwriting margin of negative 4%. The commercial vehicle rate calculation is to be similarly revised. Basic limit rates for private livery and garage-dealers are tied to the private passenger premiums. Rates for other vehicle types, where

data is badly lacking in statistical credibility, may remain unchanged in accordance with the Bureau's recommendation.

Coverage B excess limits are more complex than basic limits, and some of the rates are subject to the "file and use" provisions of Chapter 175A. Since the insurance consumer can choose between numerous upper limit values, there are several rates to be made here rather than just one. The Bureau has simplified the matter by expressing all excess limits rates as relativities to a base figure. No change was sought by any party to the hearings in the excess limits relativities. Discussion, therefore, was centered on the proportionality factor defining the base rate in terms of the average Coverages A and B (basic) rates. The Bureau's method of determining the appropriate change in that factor involved the computation of separate development factors for each layer of coverage. This approach, suggested by Dr. Peters at a previous hearing, is now thought by Dr. Peters to be overly cumbersome and confusing. I concur. A potentially better methodology might treat all basic limits (Coverage A and Coverage B) and excess limits as a single unit for purposes of development and trending. In this manner an overall check would

be provided for losses which move with inflation from one layer to another. Certainly, the separate treatment of layers within the excess limits group is more difficult than productive. Because the Bureau and the Department reach numerically identical recommendations this year and because the Coverage A methodological changes are automatically reflected in any proportional excess limits change, the Bureau's recommendation for a 17% increase in the proportionality factor is hereby approved for all vehicle classes. The Bureau's advisory filing on coverages under Chapter 175A will be considered a formal filing for this purpose.

To the extent that general inflation affects bodily injury claims costs, one should anticipate that basic limits premiums will rise more than the general rate. If every basic limits claim were increased by a fixed percentage, some of the new payout would cross the line into excess limits and thus be reflected in the latter rates. The basic rates would rise less than the fixed percentage while the excess rates would rise more than the fixed percentage. That kind of result is embodied in this year's rate changes.

All Vehicles, Coverage D

Coverage D is an optional medical payments coverage to provide additional protection above that automatically

available through Coverage A. The Bureau recommends a \$1 increase in the rate for each of the three private passenger coverage options. Recomputing the filing with the Coverage A methodological changes does not alter the rounded results. The increases are accordingly granted. Again, the advisory filing will be considered a formal filing for those coverages governed under Chapter 175A. The Bureau advises no change in medical payments rates for classes other than private passenger. In light of the low statistical credibility in those classes, the suggestion is appropriate and no change is ordered.

All Vehicles, Coverage U

Coverage U protects against damage caused by uninsured or underinsured motorists. Claims here are relatively few, premiums are low, and no party to the hearing suggested a change for any class of vehicles in the rate for Coverage U as presently defined. This applies to those Coverage U elements controlled by Chapter 175A as well as those fixed and established by the Commissioner. Coverage U, however, also provides a useful vehicle for the treatment of a statutorily

mandated pass-through of costs incurred by the Massachusetts Insurers Insolvency Fund. Evidence indicates that assessments on Massachusetts automobile premium for the insolvency of the Rockland Mutual Insurance Company have exceeded \$3 million. Statutory language in the insolvency act makes clear that provision for recouping this amount is to be included in automobile premiums. The Bureau recommends that insurers be given the option of either adding \$1 to everyone's Coverage U premium or adding \$1 to each policy as a general surcharge. The Attorney General's brief suggests that the charge be proportional to the overall amount of coverage bought rather than a flat \$1 and further suggests that the recoupment provision be smaller so as to spread its effect over a longer time period as permitted by statute. Everyone seems in agreement that eventual assessment is called for. The timing, allocation and form of the payment raise the disputes. On the question of form, I can not accept the suggestion of the Bureau. It would be unnecessarily confusing to policyholders to allow more than one method of premium collection. The companies can certainly adjust their bookkeeping procedures to collect all recoupments under Coverage U. This is the most appropriate place for such

an assessment against policyholders on an ongoing basis. Each year's Coverage U premium should reflect prior years' insolvency payments.

As to the allocation and timing of the payments, I would be far more sympathetic to the points raised by the Attorney General if the needed assessment were larger than \$1 per policyholder. Spread over time would make sense in the case of a massive assessment. Proportional allocation among policyholders is more debatable, but the argument for it would surely be enhanced were the assessment a large one. For simplicity and the convenience of policyholders, it is useful to think of a round \$1 per vehicle as the minimum assessment that might be used in any circumstance. To adopt either of the Attorney General's suggestions this year would require the use of smaller figures. A \$1 assessment in the form of a flat increase in the rate for Coverage U is hereby ordered. Consideration in the future of longer time periods for recoupment and proportional rather than flat allocation is not precluded should larger assessments someday be needed.

Adjustments for Prior Years

One of the most perplexing issues of this hearing centered around subsequent review of the rates for 1974 and 1975. Two separate statutes are involved. Chapter 1113 of the Acts of 1973 provided that the 1974 rates be set only provisionally at that time pending an examination of the impact of the energy crisis. Section 113B of Chapter 175 of the General Laws contains language mandating that each year's rate hearing consider the rates for the then current year as well as the coming year and that, if the current year's rates should be found not to meet statutory standards, rates for the coming year be set so as to be appropriate "for the two affected calendar years taken together". Under these two provisions of law, if interpreted with the strictest possible shading, a strong case could be made for premium adjustments in both past years. It is always possible to apply hindsight with more accuracy than foresight.

No party at the hearings explored this matter in great depth, either factually or legally. Past hearing transcripts indicate that the pattern of light treatment is more the rule than the exception. In my judgment, this is a tacit recognition of the extreme difficulties

in applying retroactivity to insurance rate decisions. When subsequent review is introduced to the process, two serious problems are necessarily invited along with it. One is in the danger of overly frequent adjustments. Because foresight is always worse than hindsight, it is easy to imagine the rates having to be reset every single year, with all of the accompanying administrative burdens and unfairnesses to an ever shifting population of policyholders. Looking back at bodily injury rates over the past twenty years, no one could possibly claim a perfect process. In previous years, when an underwriting profit allowance of 1% in Coverage A was targeted, an ideal rate setting process would have granted insurers a combined loss and expense ratio of 99% in relation to premiums. In only six of the past twenty years has the actual loss and expense ratio been within five points of the target. Had Chapter 113B's mandate been present throughout those years and were it enforced to its strictest possible shade of interpretation, a rebate or surcharge adjustment could well have been ordered in more years than not. For a changing body of policyholders and for consumers suddenly unable to see the prices on their purchases in advance, more harm than good would surely have been done.

The cumulative loss and expense ratio for the twenty year period turned out to be 101%, well within the tolerance of the statutory standards - two points higher than the then-accepted target and three points lower than the standard set forth earlier in this decision. The balance in insurance rate setting works far better on a dynamic basis than on a year-to-year static basis. The public would clearly be disserved by setting a tight standard of single year accuracy in the application of the subsequent review sections.

The second problem is equally serious. Insurance rate setting has been carefully designed in most states to contain a normative element as well as a positive element. Positive rate setting takes all observed facts as given. It assumes that all expenditures are legitimate and that the rate regulator is neutral on all matters of public policy. Normative rate setting uses the control of price to influence behavior. If insurers were to consistently overpay claims, a normative process would provide them less than the statistics at first would call for. Likewise, a normative process could seek to exert control over the level of general expenses in a regulated industry.

Prospective rate setting lends itself well to a hybrid positive and normative process. Subsequent review with the strictest standards tends to weaken the normative role. The history of regulated industries shows clearly the need for normative rate-making. It would be contrary to the best interests of the public to defeat all normative considerations with an overly strict application of subsequent review.

None of the above is intended to strip Chapter 113B of its weight entirely. Were the insurance industry to experience a year in which the complement of the loss and expense ratio, instead of 1% or negative 4%, proved to be 50%, a rebate would obviously be appropriate. In 1972, my predecessor had to order a 26% rebate just to bring the profit margin within ten points or so of its target. So the subsequent review has weight and it may have value. It should not, however, be applied routinely and the standards for its use should be far from strict. Bodily injury rates have missed their intended targets by roughly ten points in four out of the last five years. The trigger for subsequent review and adjustment should properly be something considerably greater. There is no need at this time to set a precise trigger. Evidence at

the hearing indicated that neither 1974 nor 1975 rates were dramatically less accurate than prospective rates generally are. Neither year appears likely to disturb the dynamic balance. No rebate is ordered for the 1974 policy year and no adjustment is to be made for the 1975 year.

Classification Relativities

All of the preceeding text has dealt with overall rate level adjustments. The other necessary part of the ratemaking process is the distribution of the total premium among various classes of drivers in proportion to differential experience. The matrix of factors relating the premium for any particular class of drivers with the premium for a base class of drivers is called a table of classification relativities. The Bureau computed relativities for 1976, as usual, on the basis of statistics gathered by age, sex, place of garaging and other discriminant characteristics. Recommendations were presented to allocate premium in accordance with experience, to provide statutorily demanded discounts for certain classes, and to simplify the commercial relativities pattern. The only voice raised in question to the Bureau's suggestions was mine. My concern was not over the statistical soundness of the computations but over a matter of basic philosophy.

There are two separate purposes that a relativity scheme could serve. One is to allocate the premium costs in direct proportion to the experience of various groups and thereby, to imitate a perfectly free market. On the other hand, relativities can also be thought of as important instruments of normative policy. A scheme which sets rates on the basis of characteristics which an individual buyer can change may have an impact on the buyer's behavior. Charging rates on the basis of characteristics which an individual buyer cannot change will have no impact on behavior.

If one bases relativities on age or sex, it is clear that no individual's pattern of behavior will be altered by the relativity system. A gray area might exist for locational territories. An individual can theoretically move from one territory to another but ordinarily there are economic or social factors that far outweigh insurance premiums as determinants of neighborhood choice. If one bases relativities on accident record, though, or on the individual's traffic conviction record, a profound social impact might be developed from those relativities.

It is unfortunate that the current relativity scheme is designed with so little regard for social impact. The unfairnesses inherent in any classification relativity scheme would at least be lightened if another social purpose were being served. Under a purely statistical system such as exists now, the unfairnesses are less tolerable. No one would deny that every time a classification definition is drawn, those drivers at the best end of their class must necessarily subsidize those at the worst end of their class. This is a particularly unpleasant result when the trait on which the classification is based is one over which the driver has no control. When classification is on the basis of geography, for example, it is always unfair to those drivers with perfect records who live in the cities while it provides a gift to the drivers with bad records who live in rural areas.

The conflict of objectives is a difficult one to resolve. If we choose the purely statistical approach, we will be creating an objectionable unfairness and failing to achieve a valuable social output. If we ignore classifications over which an individual has no control, we lose the ability to imitate the free market. Whenever that happens, an informal rationing scheme develops. If, for

example, people over 65 were charged the same as people under 25, any profit motivated company would do everything possible to avoid under-25 drivers and sign up the over 65 drivers. Informal rationing of that sort is socially destructive and difficult indeed to prevent. Despite our present mandatory-offer laws for all drivers, a company can easily position its offices and agents in only those places where it is most likely to attract the classes of business it prefers. We see that frequently in Massachusetts today.

The dilemma is difficult, but it is particularly troubling to me in the case of sex based classifications. Among under-25 drivers, there is clear and irrefutable statistical evidence that males have worse driving records than females. As a result, they are classified separately and with a pronounced differential. Obviously, though, some males are being unfairly punished for a trait over which they have not a shred of control. One could at least argue that age distinctions are tolerable because everyone will eventually grow out of the higher rated class. One could argue that the driver has theoretical control over geographical territory. No such defense can justify a sex distinction. I asked the Bureau's actuary, Mr. Alexander,

if he would construct a classification based on race if he found that the average white driver had a very different accident record from the average black driver. He said that he would not, and he gave as his reason that such a distinction would be socially unacceptable. He is obviously right. When asked whether he thought sex was a socially acceptable basis for distinction, Mr. Alexander replied that it was. There I tend to disagree. These are times of change in the traditional male and female roles. Sex discrimination is increasingly frowned upon even when, as here, it operates to the benefit of women. As roles change, the statistics will likely change along with them. Even if they do not, sex distinction in business seems destined to continue diminishing and categorization by sex will be increasingly less acceptable. It is only the lack of a solid hearing record on this issue that prevents me from ordering that all sex classification be dropped forthwith. Instead, I place the Bureau on notice that 1976 will be the last year of sex based classification realtivities unless a positive case - on social acceptability grounds - is presented at next year's hearing. If no convincing case to the contrary

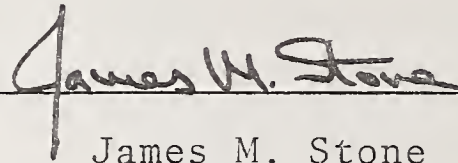
is offered, the relativities will be sex-blind on January 1, 1977 and thereafter. Evidence and arguments on whether other characteristics beyond the individual's control should remain as bases for classification will also be welcomed at next year's hearing. For the meanwhile, the Bureau's recommendations on classifications relativities are approved in full.

Procedures and Appeals

The rules, rates, charges, classifications, formulas and orders contained herein are made pursuant to authority granted to me as Commissioner of Insurance by Chapter 175 of the General Laws, Sections 113B, 113C and other provisions of law. This decision has been filed this 17th day of November, 1975, in my office and with the Secretary of the Commonwealth as a a public record.

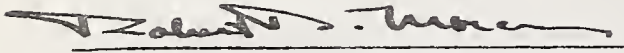
In accordance with Chapter 175, Section 113B, insurers may file for deviations from the established rates within 30 days of this date. All deviations approved will be effective January 1, 1976.

Any person or company aggrieved by any action ,
order or finding contained herein, may within twenty
days from November 17, 1975, file a petition in the
Supreme Judicial Court for the County of Suffolk for
a review as provided in Section 113B of Chapter 175.



James M. Stone
Commissioner of Insurance

True Copy Attest:



Robert D. Moran
First Deputy Commissioner
of Insurance